=> d bib ab 26 34 37 39 40 42 43 49 53 56 60 61 64

L38 ANSWER 26 OF 64 WPIDS COPYRIGHT 2001 DERWENT INFORMATION LTD
AN 1995-044064 [07] WPIDS
DNC C1995-019942
TI New alanine **racemase** from Tolypocladium niveum - used in enzymatic synthesis of D-**amino acids**.
DC B05 D16 E19
IN HOFFMANN, K; KLEINKAUF, H; PALMA, N; SANTER, G; SCHNEIDER-SCHERZER, E; SCHROEGENDORFER, K; ZOCHER, R
PA (SANO) SANDOZ PATENT GMBH
CYC 1
PI DE 4314611 A1 19950112 (199507)* 11p
ADT DE 4314611 A1 DE 1993-4314611 19930504
PRAI DE 1993-4314611 19930504
AB DE 4314611 A UPAB: 19960520
Purified alanine **racemase** (I) from Tolypocladium niveum is new.
USE - (I) is used for enzymatic synthesis of D-**amino acids**.
ADVANTAGE - (I) has sufficient thermal stability for use as biocatalyst and is able to epimerise most known **amino acids** (with varying degrees of efficiency).
Dwg.0/0

L38 ANSWER 34 OF 64 WPIDS COPYRIGHT 2001 DERWENT INFORMATION LTD
AN 1991-159796 [22] WPIDS
DNC C1991-069067
TI New aspartic acid **racemase** - catalyses racemisation of D- and L-aspartic acids and is obtained from streptococcus thermophilus - based on methionine, glutamic acid, asparagine, phenylalanine, serine, isoleucine, leucine, glycine, threonine, etc..
DC B04 D16
PA (ASAG) ASAHI GLASS CO LTD
CYC 1
PI JP 03094678 A 19910419 (199122)* 5p
JP 2950865 B2 19990920 (199944) 5p
ADT JP 03094678 A JP 1989-231395 19890908; JP 2950865 B2 JP 1989-231395 19890908
FDT JP 2950865 B2 Previous Publ. JP 03094678
PRAI JP 1989-231395 19890908
AB JP 03094678 A UPAB: 19930928
Novel aspartic acid **racemase** (a) catalyses racemic reaction from L-aspartic acid into D- and L-aspartic acid and racemic reaction from D-aspartic acid into L- and D-aspartic acid, (b) acts selectively on aspartic acid racemic reaction and does not act on other **amino acid**, (c) has optimum pH of 8 to 37 deg.C, (d) shows no redn. in activity after 1 hr. treatment at 45 deg.C at pH 6.5-8, (e) shows no redn. in activity by treating at 50 deg.C for 60 mins. at pH 7, (f) has total molecular wt. of about 60000 (gel filtration) and subunit molecular wt. of 28000, and (g) has **amino acid** sequence of Met-Glu-Asn-Phe -Phe-Ser-Ile-Leu -Gly-X-Met-Gly -Thr-Met-Ala-Thr -Glu-Ser-Phe at the terminal.
The **racemase** is obtd. by cultivation of Streptococcus thermophilus IAM 10064.
0/0

L38 ANSWER 37 OF 64 WPIDS COPYRIGHT 2001 DERWENT INFORMATION LTD
AN 1990-255666 [34] WPIDS
DNC C1990-110656
TI Racemisation of aminoacid amide cpds. - by contact with enzyme with aminoacid amide **racemase** activity from microorganism.

DC B05 D16 E19
IN HERMES, H; PEETERS, W; PETERS, P H
PA (NOVO) NOVO NORDISK AIS; (STAM) STAMICARBON BV
CYC 9
PI EP 383403 A 19900822 (199034)*
R: BE CH DE ES FR GB IT LI NL
ADT EP 383403 A EP 1990-200335 19900214
PRAI EP 1989-200380 19890216; EP 1990-200335 19900214
AB EP 383403 A UPAB: 19930928
Process for complete or partial racemisation of aminoacid amides of formula R-CH(NH2)-CONH2 (I) is claimed which comprises exposing the cpds. to an enzyme with aminoacid amide **racemase** activity, which enzyme is in species of the genus Klebsiella and related genera e.g. Enterobacter, Escherichia, Shigella, Citrobacter and Salmonells from the family of the Enterobactereaceae. (R = indolyl, benzyloxy, lower alkyl opt. substd. by OH, SH, amino, halogen, phenyl, phenoxy, benzyl or lower alkylthio, or R= phenyl opt. substd. by one or more of OH, amino, halogen, carboxy or lower alkoxy). Pref., the enzyme is derived from Klebsiella oxytoca strain NCIB 40113, Pseudomonas putida strain ATCC 12633 or NCIB 40042 or Rhodococcus sp. strain NCIB 40041.
USE/ADVANTAGE - Aminoacid amides can be racemised with low losses of material through by-prod. formation. The prods. can be subjected to enantioselective enzymatic hydrolysis to prepare optically active **amino acids** which can be used as e.g. food and feed additives. @
0/0

L38 ANSWER 39 OF 64 WPIDS COPYRIGHT 2001 DERWENT INFORMATION LTD
AN 1990-189443 [25] WPIDS
DNC C1990-082123
TI Racemisation of aminoacid - using **racemase** contg. microbial cells which are pre-contacted with cell wall digesting enzyme.

DC B05 D16 E19
PA (KEIS) KEISHITSU RYUBUN SHINYOTO
CYC 1
PI JP 02124097 A 19900511 (199025)*
ADT JP 02124097 A JP 1988-276050 19881102
PRAI JP 1988-276050 19881102
AB JP 02124097 A UPAB: 19930928
In racemisation of **amino acid** by using **amino acid racemase** contg. microbial cells or their immobilised substance, the cells or their immobilised substance are preliminary contacted with cell wall digesting enzyme.
Pref. cell wall digesting enzyme is glycosidase, pref. lysozyme or N-acetylmuramidase. The **amino acid racemase** contg. microbe is sensitive to glycosidase.
USE/ADVANTAGE - Cell membrane permeability of cells can be increased under conditions mild enough to maintain activity without damaging **racemase** activity. Thus **amino acid** can be racemised in high yield.
0/0

L38 ANSWER 40 OF 64 WPIDS COPYRIGHT 2001 DERWENT INFORMATION LTD
AN 1990-189437 [25] WPIDS
DNC C1990-082117
TI Culture of pseudomonas S.P. bacteria - has low substrate specificity and contains **amino acid racemase** one or more of L-or DL-glutamic acid.

DC B04 D16
PA (KEIS) KEISHITSU [redacted] UBUN SHINYOTO
CYC 1
PI JP 02124087 A 19900511 (199025)*
ADT JP 02124087 A JP 1988-276052 19881102
PRAI JP 1988-276052 19881102
AB JP 02124087 A UPAB: 19930928
In culturing Pseudomonas s.p. bacteria which has low substrate specificity
and contains **amino acid racemase** one or more kinds of L- or DL-glutamic acid and its salts, L- or DL-aspartic acid or its salts, L- or DL-alanine, L- or DL-serine, L- or DL-lysine and its hydrochloride, L- or DL-proline, L- or DL-leucine and L- or DL-arginine, are used as carbon source.

USE/ADVANTAGE - High content **racemase** retained cells can be obtd. without inhibiting **racemase** formation in cells, **amino acid** can be racemised in high efficiency with using the cells.

In an example, each 100 ml of medium (polypeptone, meat extract, NaCl, distilled water 1000 ml) was sterilised. To this, 1 loop of Pseudomonas putida IF0122996 was inoculated and shaking cultured at 30 deg.C for 15 hours. Then each 1 ml of the culture was inoculated to each 100 ml of medium (K2HPO4, KH2PO4 (NH4)2SO4, MgSO4.7H2O, tryptone (Difco), yeast extract (Difco), principal C sources, e.g. Na L-glutamate, Na L-aspartate, L-alanine, L-serine, L-lysine.HCl, L-proline, L-leucine or L-arginine, distilled H2O 1000 ml, pH 7.0), and spinner cultured at 30 deg.C for 20 hours. Cells were collected from each culture (40 ml) by centrifugation, washed with 0.1M phosphate buffer, then suspended in the same buffer and ultrasonificated, centrifuged to obtain crude enzyme soln..

0/0

L38 ANSWER 42 OF 64 WPIDS COPYRIGHT 2001 DERWENT INFORMATION LTD
AN 1990-152258 [20] WPIDS
DNC C1990-066460
TI Culturing method for **amino acid racemase** -producing microbe - by keeping nitrogen source concn. in culture medium at specific concn..
DC B04 B05 D16 E19
PA (KEIS-N) KEISHITSURYUBUN SHI
CYC 1
PI JP 02097377 A 19900409 (199020)*
ADT JP 02097377 A JP 1988-249771 19881005
PRAI JP 1988-249771 19881005
AB JP 02097377 A UPAB: 19930928
Culturing the bacterial strain which belongs to Pseudomonas and produces **amino acid racemase** (abbr. AAR) and is charcterised by keeping the N source concn. in culture medium in the range of 0.005-0.02 w/w% as N concn.

Pref. as N source ammonium salts, nitrate, organic cpds. such as glutamic acid, glutamine, aspartic acid, asparagine, etc. can be used and for keeping N source concn. they are added continuously or intermittently.

USE/ADVANTAGE - For synthesising **amino acids** economically, racemisation process is required and the enzymic racemisation by AAR is desirable. It has been known that Pseudomonas putida IFO12996 can produce AAR and its AAR productivity is very low. Thus the culturing method for increasing the prodn. of AAR has been expected and a culturing method has been obtd. using glycerol, ethanol, lactic acid, citric acid, etc. as carbon source (pat. publ. No. 205781/87). Also keeping N source concn. in culture medium in above range, the bacterial body showing high AAR acrivity can be obtd. @@

L38 ANSWER 43 OF 64 WPIDS COPYRIGHT 2001 DERWENT INFORMATION LTD
AN 1990-123561 [16] WPIDS
CR 1987-300108 [43]
DNC C1990-054370
TI Pseudomonas putida IFO 12996 aminoacid **racemase** prodn. - using glycerol, ethanol and/or tartaric acid as carbon source, giving increased enzyme prodn. relative to glucose.
DC B05 D16 E16
IN ENDO, F; SHIMAZU, M; YUKAWA, H
PA (REUT-N) RES ASSOC UTIL LIGH
CYC 1
PI US 4906572 A 19900306 (199016)*
ADT US 4906572 A US 1987-21356 19870303
PRAI JP 1986-44122 19860303
AB US 4906572 A UPAB: 19930928
Prodn. of an **amino acid racemase** comprises culturing pseudomanonas putida IFO 12996 in a culture medium contg. glycerol, EtOH and/or tartaric acid as carbon source, the total concn. of carbon source added to the medium during cultivation being at least 0.5% w/v, and recovering cells contg. the **racemase**.
USE/ADVANTAGE - Used for racemisation of residual D-**amino acids** in synthesis of L-**amino acids** via racemic forms, the Ps. putida **racemase** being active on eg. lysine, arginine, methionine, alanine or serine. Prodn. of the **racemase** is increased using the specified carbon sources (c.f. glucose which inhibits enzyme prodn.) making prodn. more favourable industrially.
0/0

L38 ANSWER 49 OF 64 WPIDS COPYRIGHT 2001 DERWENT INFORMATION LTD
AN 1989-055466 [08] WPIDS
DNC C1989-024484
TI New acyl aminoacid **racemase** for optically active aminoacid prodn. - from racemic N-acylamino-carboxylic acid in presence of specific amino acylase.
DC B04 B05 D16 E19
IN HATANO, K; TAKAHASHI, T
PA (TAKE) TAKEDA CHEM IND LTD
CYC 19
PI EP 304021 A 19890222 (198908)* EN 20p
R: AT BE CH DE ES FR GB GR IT LI LU NL SE
HU 47317 T 19890228 (198914)
DK 8804624 A 19890222 (198920)
JP 01137973 A 19890530 (198927)
CN 1035320 A 19890906 (199028)
US 4981799 A 19910101 (199104) 13p
EP 304021 B1 19930428 (199317) EN 22p
R: AT BE CH DE ES FR GB GR IT LI LU NL SE
DE 3880585 G 19930603 (199323)
JP 2712331 B2 19980210 (199811) 12p
KR 9700185 B1 19970106 (199932)
ADT EP 304021 A EP 1988-113315 19880817; JP 01137973 A JP 1988-180778 19880720; US 4981799 A US 1988-227882 19880803; EP 304021 B1 EP 1988-113315 19880817; DE 3880585 G DE 1988-3880585 19880817, EP 1988-113315 19880817; JP 2712331 B2 JP 1988-180778 19880720; KR 9700185 B1
KR 1988-10620 19880820
FDT DE 3880585 G Based on EP 304021; JP 2712331 B2 Previous Publ. JP 01137973
PRAI JP 1987-208484 19870821; JP 1988-180778 19880720
AB EP 304021 A UPAB: 19930923
The new enzyme acylamino acid **racemase** (AAR) converts D-N-acyl -alpha-aminocarboxylic acid (I) to the corresponding L-isomer, and vice versa, but does not convert D-alpha-**amino acid** to its L-isomer, nor vice versa.
(I) has formula X-NH-CHR-COOH; X = opt. substd. carboxylic acyl,

best

1-3C alkanoyl or benzoyl opt. substd. by halo, 1-3C alkyl, 1-3C alkoxy and/or NO2; R = [redacted]. substd. 1-20C alkyl, esp. 1-[redacted]unsubstd.; 1-3C substd by OH, 1-3C alkylthio, SH, phenyl, hydroxyphenyl or indolyl; or 1-4C substd. by NH2, COOH, guanidino or imidazolyl.

USE/ADVANTAGE - AAR is used to produce D-orL-**amino acids** by treatment ofDL- (I), in presence of D-orL- aminoacylase (AA). This process provides 100% conversion of starting material to a specific **amino acid** without sepn. or racemisation steps.

0/4

L38 ANSWER 53 OF 64 WPIDS COPYRIGHT 2001 DERWENT INFORMATION LTD
AN 1988-333485 [47] WPIDS
DNC C1988-147240
TI New **amino acid** racemate - is derived from Pseudomonas, and used for racemising aromatic **amino acids**.
DC B05 D16
PA (SAGA) SAGAMI CHEM RES CENTRE
CYC 1
PI JP 63245673 A 19881012 (198847)* 11p
JP 07089928 B2 19951004 (199544) 8p
ADT JP 63245673 A JP 1987-76290 19870331; JP 07089928 B2 JP 1987-76290 19870331
FDT JP 07089928 B2 Based on JP 63245673
PRAI JP 1987-76290 19870331
AB JP 63245673 A UPAB: 19930923
Amino acid racemase has the following characteristics: (1) Catalyses reaction of generation of racemate from L- or D-**amino acids**. (2) Shows wt. of 60,000-80,000 by HPLC gel filtration and mol. wt. of subunit of 30,000-47,000 by SDS-PAGE. (3) Acts on phenylalanine, tryptophan and tyrosine. Pref. any strain of Pseudomonas with **racemase** activity can be used, but pref. strain is Pseudomonas putida SCRC-744 (FERM P-9039) derived from a soil of Kanagawa prefecture. Relative **racemase** activity to D-**amino acids** is D-glutamine (100%), D-methionine (42%), D-alanine (36%), D-serine (31), D-lysine (22), D-arginine (21%), D-leucine (15%), D-asparagine (6%), D-cysteine (6%), D-histidine (5%), D-phenylalanine (1%), D-tryptophan (0.8%) and D-tyrosine (0.4%). The **racemase** can act on aromatic D-**amino acids**. Optimum pH and temp. are pH 8 and 50-60 deg. C, respectively.

USE/ADVANTAGE - The **racemase**, different from known racemases, racemises aromatic **amino acids** and does not need ATMP as a coenzyme. The **racemase** is new and is derived from Pseudomonas.

0/5

L38 ANSWER 56 OF 64 WPIDS COPYRIGHT 2001 DERWENT INFORMATION LTD
AN 1987-300108 [43] WPIDS
DNC C1987-127687
TI Aminoacid **racemase** from Pseudomonas - by growing on medium contg. non-sugar carbon source, esp. glycerol.
DC B05 D16 E19
IN ENDO, F; SHIMAZU, M; YUKAWA, H
PA (KEIS-N) KEISHITSU-RYUBUN SH; (REAS-N) RES ASSOC UTIL LIGH
CYC 2
PI DE 3706724 A 19871022 (198743)* 5p
JP 62205781 A 19870910 (198743)
ADT DE 3706724 A DE 1987-3706724 19870302
PRAI JP 1986-44122 19860303
AB DE 3706724 A UPAB: 19930922
Pseudomonas microorganisms which produce **amino acid racemase** (I) are grown in a culture medium contg. glycerol, EtOH, tartaric-, fumaric- or succinic-acids as C source, then cells, which

contain large amts of (I), recovered. Pref the C source is glycerol and the total concn C source added during cultivat is at least 0.5 wt./vol.%. The m oorgan-ism is esp P putida IFO 2996. Pref the microorganism is grown at 10-45, (25-40, deg C and pH 3-10, (5-9), under aerated conditions for 4 hr - 3 days. The C source can be added to the starting medium, or added in portions during the incubation. The harvested cells can be used directly (wet or dry) or they can be lysed and opt. a cell-free, enzyme-contg. extract recovered.

USE/ADVANTAGE - This method provides higher yield of (I) than is possible using glucose as C source. (I) is esp used to racemise residual D-**amino acids** left after recovery of the h-isomer.

0/0

L38 ANSWER 60 OF 64 WPIDS COPYRIGHT 2001 DERWENT INFORMATION LTD
AN 1987-153956 [22] WPIDS
DNC C1987-064352
TI L-Isoleucine prepn. from D or DL amino butyric acid - in presence of enzyme racemising the acid or a microorganism contg. enzyme.

DC B05 D16 E16
PA (MITP) MITSUBISHI PETROCHEMICAL CO LTD
CYC 1
PI JP 62091191 A 19870425 (198722)* 4p
ADT JP 62091191 A JP 1985-232081 19851017
PRAI JP 1985-232081 19851017
AB JP 62091191 A UPAB: 19930922
D-alpha-aminobutyric acid or DL-alpha-aminobutyric acid is added to a culture medium and a bacterium is cultured in the medium in presence of an enzyme which racemises D-alpha-aminobutyric acid or a microorganism contg. the enzyme or treatment of the microorganism.

Pref. L-isoleucine-producing bacteria are Brevibacterium flacum MJ-233 (ferm-P 3068) and Brevibacterium flavum MJ-233-AB-41 (FERM-P 3812).

They are cultured in a medium (pH 7-8) at 25-35 deg.C for 5 days under aerobic conditions.

The enzyme which can racemise D-alpha-aminobutyric acid is produced by Pseudomonas putida (IFO 12996). The enzyme may be added from the first or in course of the culure. After the culture, bacterial cells are removed and L-isoleucine is purified from the culture medium as usual.

USE/ADVANTAGE - L-isoleucine, one of essential **amino acids**, has been produced by fermentation using DL-alpha-aminobutyric acid as precursor, because DL-alpha-aminobutyric acid is easily available. The prod. rate of L-isoleucine from D-alpha-aminobutyric acid. In this method the prodn. rate from D-alpha-aminobutyric acid is increased by adding a **racemase** in the medium and yield of L-isoleucine is high.

0/0

L38 ANSWER 61 OF 64 WPIDS COPYRIGHT 2001 DERWENT INFORMATION LTD
AN 1986-276390 [42] WPIDS
DNC C1986-119658
TI Gene coding alpha-amino-epsilon-caprolactam **racemase** - used in conversion of D- or DL- cpd. to L-lysine by recombinant DNA.

DC B04 D16
PA (TORA) TORAY IND INC
CYC 1
PI JP 61202693 A 19860908 (198642)* 9p
ADT JP 61202693 A JP 1985-42739 19850306
PRAI JP 1985-42739 19850306
AB JP 61202693 A UPAB: 19930922
Gene coding alpha-amino-epsilon-caprolactam **racemase** whose M.W. is 4.5 x 10 power 4 dalton and **amino acid** sequence of

N-terminal side is: Thr-Lys-Ala-Leu-Tyr-Asp-Arg-Asp-Gly
-Ala-Ala-Ile-Gly[redacted]n-Leu-Gly-Lys-Leu -Arg-Phe-Phe[redacted]o-Leu-Ala-Ile-Ser-Gly
-Gly-Arg-Gly-Ala[redacted]g-Leu-Ile-Glu-Glu -Asn-Gly-Arg[redacted]u-Leu-Ile-Asp-Leu-Ser
-Gly-Ala 3.5Kb DNA fragment contg. the gene. Recombinant DNA obtd. by integrating the DNA fragment is also claimed.

DNA donor is Achromobacterium obae having alpha-amino-epsilon-caprolactam **racemase** producibility. The DNA fragment is obtd. by general method. The recombinant DNA is obtd. by binding the DNA fragment with plasmid vector, transforming host with the plasmid, cultivating the transformed cell in medium contg. L-alpha-amino-epsilon-caprolactam hydrolase and D-alpha-amino-epsilon-caprolactam, selecting transformed cell having the **racemase** activity and extracting plasmid. The host is lysine-requiring mutant of E. coli. Amt. of the hydrolase is 10-100 unit/ml.

USE/ADVANTAGE - E. coli transformed by the recombinant DNA and having alpha-amino-epsilon-caprolactam **racemase** producibility can convert D- or DL-alpha-amino-epsilon-caprolactam to L-lysine by combined use with L-alpha-amino-epsilon-caprolactam hydrolase.

0/0

L38 ANSWER 64 OF 64 WPIDS COPYRIGHT 2001 DERWENT INFORMATION LTD
AN 1980-54522C [31] WPIDS
TI Quantitative or qualitative determn. of aminoacid - involves converting one optically-active isomer to another using aminoacid-**racemase** and oxidn..
DC B05 D16
PA (MATU) MATSUSHITA ELEC IND CO LTD
CYC 1
PI JP 55081595 A 19800619 (198031)*
JP 56043358 B 19811012 (198145)
PRAI JP 1978-155633 19781214
AB JP 55081595 A UPAB: 19930902
The method for analysing, aminoacids quantitatively or qualitatively involves converting L-(or d-) aminoacid to D-(or L-) aminoacid with aminoacid-**racemase**; oxidising the converted D-(or L-)aminoacid with D-(or L-)amino-oxidase; and measuring the change during oxidn. By this method specific aminoacid in the substance contg. various aminoacids can be selectively analysed.

As **amino acid-racemase** alanine-**racemase**, methionine-**racemase**, glutamate-**racemase**, proline-**racemase**, lysine-**racemase**, threonine-**racemase**, etc. can be used. Aminoacid-**racemase** and D-(or L-) aminoacid-oxidase are pref. used in the form of fixed enzyme. For the object the change during oxidn. is measured. The decrease in oxygen concn. the increase in hydrogen peroxide concn., the decrease in redox cpd. (oxidised form) concn. or the increase in redox cpd. (reduced form) concn. can be used as the indicator, and they can be easily measured electrically or colorimetrically.

=> d his

(FILE 'HOME' ENTERED AT 14:37:26 ON 23 MAR 2001)

FILE 'CA' ENTERED AT 14:37:54 ON 23 MAR 2001
L1 2245 S EPIMERASE OR RACEMASE
L2 450535 S AMINO ACID#
L3 611 S L1 AND L2
L4 89500 S ARTHROBACTER OR PSEUDOMONAS OR RHIZOBIUM OR STREPTOMYCES OR
N
L5 137 S L3 AND L4
L6 11842 S ISOMERASE
L7 13890 S L1 OR L6

```
L8          2256 S L7 AND L2
L9           313 S L8 A[redacted] L4
L10         1513 S EPI[redacted]ASE
L11       450535 S AMINO ACID#
L12         1513 S L10 AND L1
L13          313 S L10 AND L11
L14         3788 S D-AMINO ACID#
L15            4 S L14 AND L10
L16         5047 S L-AMINO ACID#
L17            1 S L16 AND L10
L18            8 S HYDROXYPROLINE EPIMERASE
L19            3 S "E.C. 5.1.1.8"
L20           10 S L18 OR L19
L21            0 S AMINO ACID EPIMERASE

     FILE 'BIOSIS' ENTERED AT 15:05:44 ON 23 MAR 2001
L22            0 S AMINO ACID EPIMERASE#
L23         1236 S EPIMERASE#
L24       251596 S AMINO ACID
L25       125371 S AMINO ACIDS
L26       321771 S L24 OR L25
L27          173 S L23 AND L26
L28         1818 S D-AMINO ACID
L29         2111 S L-AMINO ACID
L30        87521 S CONVERSION OR INVERSION OR EPIMERIZATION
L31           12 S L28 AND L29 AND L30

     FILE 'USPATFULL' ENTERED AT 15:22:32 ON 23 MAR 2001
L32         1255 S EPIMERIZATION OR EPIMERASE
L33        72318 S AMINO ACID#
L34          455 S L32 AND L33
L35           78 S L32 (P) L33

     FILE 'WPIDS' ENTERED AT 15:30:13 ON 23 MAR 2001
L36          183 S EPIMERASE OR RACEMASE
L37        42642 S AMINO ACID#
L38           64 S L36 AND L37

=> log hold

                                                    SINCE FILE      TOTAL
COST IN U.S. DOLLARS                                   ENTRY      SESSION
                                                       75.14       269.89

FULL ESTIMATED COST

                                                    SINCE FILE      TOTAL
DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)             ENTRY      SESSION
                                                        0.00        -7.84

CA SUBSCRIBER PRICE

 SESSION WILL BE HELD FOR 60 MINUTES
STN INTERNATIONAL SESSION SUSPENDED AT 15:37:50 ON 23 MAR 2001
```

0 ANSWER 5 OF 10 CA COPYRIGHT 2001 ACS
AN 100:47729 CA
TI Hydroxyproline 2-epimerase of Pseudomonas. Subunit structure and active site studies
AU Ramaswamy, Sengoda G.
CS Sch. Med., Univ. Maryland, Baltimore, MD, 21201, USA
SO J. Biol. Chem. (1984), 259(1), 249-54
CODEN: JBCHA3; ISSN: 0021-9258
DT Journal
LA English
AB Hydroxyproline 2-epimerase (I) of P. putida was purified to homogeneity by an improved procedure. Native I consisted of 2 probably identical subunits. Alkylation of the active site with labeled reagents resulted in the loss of 80-85% of the activity, but with the incorporation of only 1 alkyl group even though the active site contains a cysteine residue from each of the 2 subunits. This result suggested that I showed half-of-the-sites reactivity. The labeled enzyme was further subjected to exhaustive alkylation with unlabeled iodoacetate, permitting tryptic hydrolysis and isolation of an active site peptide in 30% yield. The specific radioactivity of the peptide was consistent with the 1st result, that only 1 mol of alkyl group was initially incorporated into the active site. The active site peptide (14 residues) was sequenced and found to possess homol. with the clostridial proline racemase.
CC 7-5 (Enzymes)
ST **hydroxyproline epimerase** structure Pseudomonas; subunit structure **hydroxyproline epimerase** Pseudomonas; active site **hydroxyproline epimerase** sequence
IT Pseudomonas putida
(**hydroxyproline epimerase** of, active site and subunit structure of)
IT Mercapto group
(in **hydroxyproline epimerase** active site)
IT Protein sequences
(of **hydroxyproline epimerase** active site, of Pseudomonas putida)
IT 9024-23-1
RL: BIOL (Biological study)
(active site and subunit structure of, of Pseudomonas putida)
IT 52-90-4, biological studies
RL: BIOL (Biological study)
(in **hydroxyproline epimerase** active site)

L9 ANSWER 76 OF 313 CA COPYRIGHT 2001 ACS
AN 128:191643 CA
TI Racemization of serine with broad substrate specificity **amino acid racemase** immobilized in polyacrylamide gel
AU Seto, Takatoshi; Imanari, Makoto
CS Tsukuba Res. Center, Mitsubishi Chemical Co., Ltd., Ibaraki, 300-03, Japan
SO Nippon Kagaku Kaishi (1997), (11), 784-789
CODEN: NKAKB8; ISSN: 0369-4577
PB Nippon Kagakkai
DT Journal
LA Japanese
AB Racemization of serine is an important reaction in the process of L-tryptophan synthesis from serine and indole. Broad substrate specificity **amino acid racemase** (EC 5.1.1.10) extd. from **Pseudomonas** putida was immobilized in polyacrylamide gel. Velocities of racemization of serine by both the native and immobilized enzymes were measured and analyzed. Two reactions catalyzed by both enzymes followed an equation of Michaelis-Menten type. For the native enzyme Michaelis const. (Km) of D-serine formation from L-serine was 4.1 x 10-2 M, being Km of the reverse reaction 1.8 x 10-2 M. Both Km and max. reaction velocity (Vm) for the forward reaction showed approx. two-fold larger than those for the reverse reaction. In the immobilized enzyme the real Kms were 1.1.-1.4 fold larger than those in the native enzyme, and the apparent Km increased with increasing a size of gel. Vms in the immobilized enzyme were 60-70% of those in the native enzyme. Extent of variations of Km and Vm was almost the same in forward and reverse reactions. By the measurement of the activity of the immobilized enzyme in a flow-reactor within 23 days the activity maintained stably within exptl. errors.

=> d pn 1 76

L35 ANSWER 1 OF 78 USPATFULL
PI US 6204050 20010320

L35 ANSWER 76 OF 78 USPATFULL
PI US 4510246 19850409

DN BA90:20626
TI PURIFICATION AND CHARACTERIZATION OF THE ISOPENICILLIN N **EPIMERASE** FROM NOCARDIA-LACTAMDURANS.
AU LAIZ L; LIRAS P; CASTRO J M; MARTIN J F
CS AREA MICROBIOL., DEP. ECOL. GENET. MICROBIOL., FAC. BIOL., UNIV. LEON, LEON, SPAIN.
SO J GEN MICROBIOL, (1990) 136 (4), 663-672.
CODEN: JGMIAN. ISSN: 0022-1287.

FS BA; OLD
LA English
AB Isopenicillin N (IPN) **epimerase**, an enzyme involved in cephalosporin and cephamycin biosynthesis that converts IPN into penicillin N, was extracted from Nocardia lactamdurans and purified 88-fold. The enzyme was unstable but could be partially stabilized by addition of pyridozol phosphate. The purified enzyme did not require ATP for activity in contrast to other **amino acid** racemases. The enzyme had an Mr of 59000 as determined by gel filtration; IPN **epimerase** from Streptomyces clavuligerus had an Mr of 63000. A protein band of Mr 59000 was found to be enriched in SDS-PAGE of active fractions from N. lactamdurans. The optimal temperature of the **epimerase** was 25.degree. C and the optimal pH 7.0. The apparent Km for IPN was 270 .mu.M. Fe2+, Cu2+, Hg2+ and Zn2+ strongly inhibited enzyme acitivity, .alpha.-Aminoadipic acid, valine, glutamine, glycine, aspartic acid and glutathione do not affect enzyme activity, whereas ammonium sulphate was inhibitory. The **epimerase** activity was partially inhibited by several thiol-specific reagents.

L27 ANSWER 152 OF 173 BIOSIS COPYRIGHT 2001 BIOSIS
AN 1990:88185 BIOSIS
DN BA89:47536
TI EXPRESSION OF RECOMBINANT DIAMINOPIMELATE **EPIMERASE** IN ESCHERICHIA-COLI ISOLATION AND INHIBITION WITH AN IRREVERSIBLE INHIBITOR.
AU HIGGINS W; TARDIF C; RICHAUD C; KRIVANEK M A; CARDIN A
CS MERRELL DOW RES. INST., 16 RUE D'ANKARA, F-67009 STRASBOURG CEDEX, FR.
SO EUR J BIOCHEM, (1989) 186 (1-2), 137-144.
CODEN: EJBCAI. ISSN: 0014-2956.

FS BA; OLD
LA English
AB Recombinant diaminopimelate **epimerase** is overproduced to give 1% of soluble protein when grown under the appropriate conditions in Escherichia coli. This compares with 0.02% of the constitutive level of wild-type enzyme. A new purification procedure now yields milligram quantities of homogeneous enzyme of high specific activity (192 U/mg). This has enabled sufficient amounts of enzyme both to compare with wild-type enzyme and to enable active site modification studies to be performed. Incubation of the enzyme with 2-(4-amino-4-carboxybutyl)-2-aziridine-carboxylic acid (AZIDAP), results in time-dependent irreversible inhibition. Tryptic digestion of the inactivated enzyme and peptide-mapping show that AZIDAP is specifically and covalently bound to the enzyme at a unique peptide. Determination of the **amino acid** sequence of this peptide and comparison with the sequence deduced from the DNA sequence of the dapF gene shows that Cys73 is labelled. Finally based on limited sequence similarities around this cysteine and active-site cysteines of proline racemase and 1-hydroxyproline 2-**epimerase**, together with mechanism considerations, we propose that all three non-pyridoxal-phosphate-containing racemases/**epimerases** derive from a common evolutionary origin.

L27 ANSWER 172 OF 173 BIOSIS COPYRIGHT 2001 BIOSIS
AN 1976:110098 BIOSIS
DN BA61:10098